Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) [[Method]] A method of manufacturing a resonator within a semiconductor device, said semiconductor device comprising a substrate ~~(Z_HO)~~ with a first ~~(XX')~~ and a second ~~(YY')~~ axes which are perpendicular, wherein said method comprises the steps of:

etching a hole ~~(TR)~~ in the substrate ~~(Z_HO)~~;

creating a first doping zone ~~(Z_DIFF1)~~ inside and around the hole ~~(TR)~~ for defining a first electrode[[,]];

partitioning said first electrode into two electrodes ~~(ELEC1, ELEC2),~~;

applying a delimited oxide deposit ~~(Z_OXI)~~ inside and around the hole ~~(TR)~~ according to a specific deposit pattern ~~(M_ARBOR),~~;

defining a second doping zone ~~(Z_DIFF2)~~ fully covering the hole ~~(TR),~~; and

removing the oxide deposit ~~(Z_OXI)~~ in order to define an element forming the resonator ~~capable of vibrating~~ configured to vibrate between the two electrodes ~~(ELEC1, ELEC2)~~, wherein the partition of the two electrodes ~~(ELEC1, ELEC2)~~ is obtained by implanting a first dopant through a partitioning pattern ~~(M_ARBOR)~~.

2. (Currently Amended) [[Method]] The method of manufacturing a resonator within a semiconductor device as claimed in claim 1, wherein the implant ~~(AR)~~ partly covers the hole ~~(TR)~~ at its bottom and sides as well as the substrate surface adjoining said hole ~~(TR)~~.

3. (Currently Amended) [[Method]] The method of manufacturing a resonator within a semiconductor device as claimed in claim 1, wherein the first dopant is Argon or Boron.

4. (Currently Amended) [[Method]] The method of manufacturing a resonator within a semiconductor device as claimed in claim 1, wherein said hole ~~(TR)~~ is a trench or a pore which is substantially perpendicular to the substrate surface ~~(Z_HO)~~.

5. (Currently Amended) [[Method]] The method of manufacturing a resonator within a semiconductor device as claimed in claim 1, wherein the substrate ~~(Z_HO)~~ is of a high-ohmic type and the first doping zone ~~(Z_DIFF1)~~ is of a low-ohmic type.

6. (Currently Amended) [[Method]] The method of manufacturing a resonator within a semiconductor device as claimed in claim 1, wherein the specific deposit pattern ~~(M_ONO)~~ extends along the second axis ~~(YY')~~, the inside of said deposit pattern ~~(M_ONO)~~ allowing the oxide to be settled inside the entire hole ~~(TR)~~ and at the substrate surface adjoining said hole ~~(TR)~~ and beyond.

7. (Currently Amended) [[Method]] The method of manufacturing a resonator within a semiconductor device as claimed in claim 1, wherein the second doping zone ~~(Z_DIFF2)~~ is obtained by means of a second doping pattern ~~(M_PS)~~ extending along the first axis ~~(XX')~~ of the semiconductor ~~(SI)~~, the inside of said pattern ~~(M_PS)~~ allowing a second dopant to be settled totally inside the hole ~~(TR)~~.

8. (Currently Amended) [[Method]] The method of manufacturing a resonator within a semiconductor device as claimed in claim 7, wherein the inside of said pattern ~~(M_PS)~~ permits a second dopant to cover totally the oxide deposit adjoining the hole ~~(TR)~~ and beyond.

9. (Currently Amended) [[Method]] The method of manufacturing a resonator within a semiconductor device as claimed in claim 1, wherein said method comprises a further step of adding first pads ~~(CTA)~~ along the second axis ~~(YY')~~ on each side of the hole ~~(TR)~~, said pads being in contact with the first doping zone ~~(Z_DIFF1)~~.

10. (Currently Amended) [[Method]] The method of manufacturing a resonator within a semiconductor device as claimed in claim 1, wherein said method comprises a further

step of adding second pads ~~(CTA)~~ along the first axis ~~(XX')~~ on each side of the hole ~~(TR)~~, said pads being in contact with the second doping zone ~~(Z_DIFF2)~~.

11. (Currently Amended) [[Method]] The method of manufacturing a resonator within a semiconductor device as claimed in claim 1, wherein said semiconductor device comprises a substrate ~~(Z_HO)~~ with a first definition zone ~~(Z_HL)~~ where the resonator is built.